DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-024367
Date Inspected: 14-Jun-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1930
Location: Job Site

CWI Name:	See Report Below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girders & Tower

Summary of Items Observed:

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the work and the inspection performed by American Bridge/Fluor Enterprises (AB/F) personnel. The inspection was performed on the various field fit-up of weld joints and the Complete Joint Penetration (CJP) groove welds of the East and West Orthotropic Box Girders (OBG's) and the Tower. The welding was performed utilizing the Shielded Metal Arc Welding (SMAW), the Flux Cored Arc Welding (FCAW) and the Electro Slag Welding processes as per the Welding Procedure Specifications (WPS).

A). W10/W11

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 10W-11W-C1 and C2. The welding was performed by Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-3042B-1 Rev. 0. The WPS was also used by the QC inspector William Sherwood as a reference to monitor and verify the welding parameters which noted and recorded by the QAI as follows: 245 amps, 24.0 volts and a travel speed measured as 295 mm per minute. The welding was performed in vertical position (3G) at approximate incline of 22 degrees. The QAI inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius.

B). Lifting Lug Holes

The QAI observed the CJP welding of the lifting lug holes identified as WN: 9E-PP79-E3, W2 and W4. The welding was performed by Jorge Lopez ID-6149 utilizing the WPS identified as ABF-WPS-D15-1110A, Rev. 0.

The QAI also observed the QC inspector perform the visual inspection and verify the welding parameters during the production welding. The inspection performed by Fred Von Hoff appeared to comply with the contract specifications.

C). Bike Path

The QAI was notified by Structures Representative, Sabastian Mofor, that three (3) 22mm threaded studs were fractured at the shank to base metal interface on the cantilevered supports beams located at Panel Points PP29 and PP31. These areas were ground to a bright metal and a Magnetic Particle Test (MPT) was performed by the QC inspector, William Sherwood. At the conclusion of the testing no rejectable indications were noted and the stud welding was performed utilizing the WPS identified as ABF-WPS-D15-5001-Stud. The QC inspector performed a visual inspection of the studs and no descrepancies were noted and appeared to exhibited a 360 degree flash around the circumference of the stud shank. The QAI concurs with the QC inspector's assessment. For additional information see Summary of Conversations.

D). ESW Shear Plate

The QAI observed the Electro Slag Welding (ESW) of the shear plate T-joint identified as WN: N-045 as noted per the QC weld map. The T-joint was located at the southwest corner of the north tower shaft starting at the tower base and extending to the 13 meter elevation and the shear plate components were identifed as "b2" to the north shaft skin plate "A". The welding was performed by Dan Ieraci ID-3232 and Rory Hogan ID-3186 utilizing the WPS identified as ABF-WPS-ESW-60-70TR and the inspection was performed by QC personnel Mike Johnson and Steve McConnell. The welding commence at 1328 and concluded at 1738. The ESW appeared to comply with the contract specifications.

This QA Inspector also performed a daily review and update of the field document control tracking records regarding the Orthotropic Box Girders, Longitudinal and Transverse "A" Deck Stiffeners and Deck Access Holes.

QA Summary

The welding was performed in the overhead and vertical positions utilizing the E7018-H4R low hydrogen, E71T-1 and the FES70-EWTG electrodes. The 3.2 mm electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. The WPS's were also utilized by the QC inspector's as a reference to monitor the welding operation, verify the welding parameters and verify the minimum preheat and the interpass temperatures. The welding parameters and surface temperatures were verified by the QC inspector's utilizing a Fluke 337 clamp meter for the electrical welding parameters and Tempil Heat Indicators for verifying the preheat and interpass temperatures. At the time of the observation no issues were noted by the QAI.

The digital photographs on page 3 of this report illustrate some of the work observed during this scheduled shift.

WELDING INSPECTION REPORT

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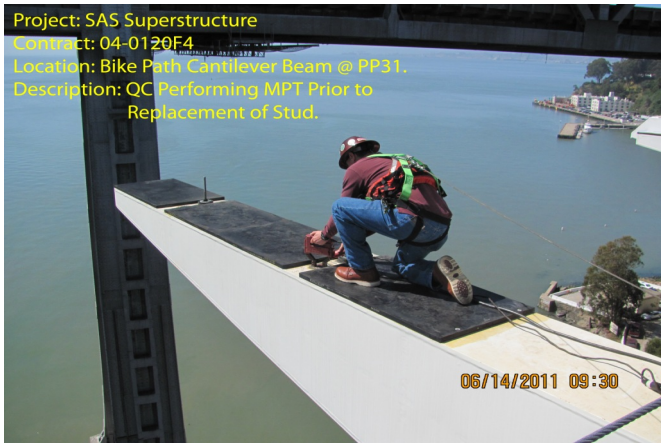

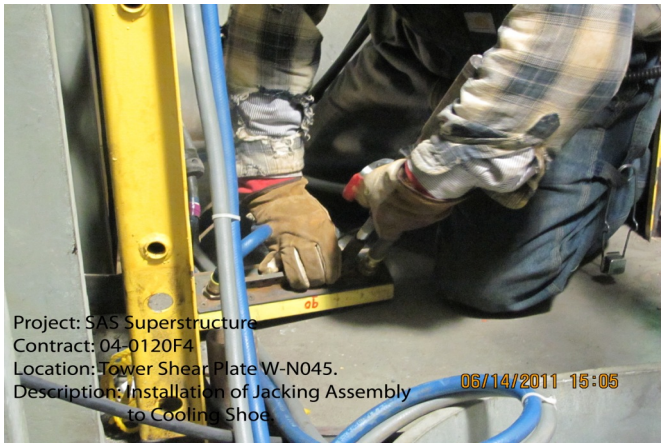

Summary of Conversations:

There were general conversations with Quality Control Lead Inspector, Bonifacio Daquinag, Jr., at the start of the shift regarding the location of welding, inspection and N.D.E. testing personnel scheduled for this shift.

Conversation With QC in Regards to Fractured Studs:

The QC inspector, Mr. Sherwood, informed this QAI that at this area the welding personnel experienced a electrical ground problems and proceeded to perform a secondary bend test on the studs to ensure complete soundness of the stud welded connection to the base metal. Mr. Sherwood also informed the QAI that ABF would fabricate a ground gang to be attached directly to the cantilevered support beam to resolve this issue.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer